

Better Buildings Residential Network Peer Exchange Call Series

Stakeholder Engagement Keys to Success – Lessons Learned by Energy Efficiency Programs

July 13, 2023



Agenda and Ground Rules

- Moderator
 - Jonathan Cohen, Better Buildings Residential Network, DOE Residential Buildings Integration Program (RBI)
- Agenda Review and Ground Rules
- Residential Network Overview and Upcoming Call Schedule
- Opening Poll
- Featured Speakers
 - Todd Miles, CLEAResult
 - Maggie Kelley Riggins, Southeast Energy Efficiency Alliance
 - James Metoyer, EnerCity Collaborative
- Open Discussion
- Closing Poll and Announcements

Ground Rules:

- 1. Sales of services and commercial messages are not appropriate during Peer Exchange Calls.
- 2. Calls are a safe place for discussion; **please do not attribute information to individuals** on the call.

The views expressed by speakers are their own, and do not reflect those of the Dept. of Energy.





Better Buildings Residential Network

Join the Network

Member Benefits:

- Recognition in media, social media and publications
- Speaking opportunities
- Updates on latest trends
- Voluntary member initiatives
- One-on-One brainstorming conversations

Commitment:

 Members only need to provide one number: their organization's number of residential energy upgrades per year, or equivalent.

<u>Upcoming Calls (2nd & 4th Thursdays):</u>

7/27: Partnership How To's – Lessons Learned for Successful Energy Efficiency Programs

8/10: TBA

Peer Exchange Call summaries are posted on the Better Buildings website a few weeks after the call







Todd Miles CLEAResult

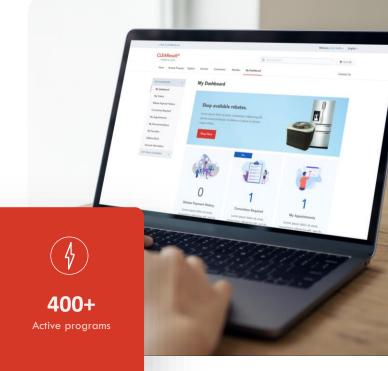




Helping everyone save energy

For nearly 20 years, our experts have led the way for utilities, governments, homes and business to use less energy with ease.

Powered by data and driven by a diverse network of on-theground advisors, our local teams create cost-effective climate solutions every day.







GWh saved annually



480K+

Rebates processed annually



\$320M+

Incentives paid



5.6M+

GJs saved annually



The ENERGY STAR® Smart Home Product Bundle

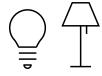
Smart Thermostats

- For central heating and/or cooling systems with advanced functionality
- Also includes smart thermal controls for distributed HVAC like baseboard heaters, room ACs



Smart LED Bulbs

- Controlled remotely
- Most can change color or brightness with app
- Can also schedule



Smart Plugs/Outlets

- Power receptacle that plugs into a wall outlet
- Allows remote control and energy monitoring



Smart **Hub/Platform**

- Used to manage smart home devices: may include real time energy monitoring, historical usage and trends, and a control dashboard.
- Ideally, voice activated







EQUALITY VERSUS EQUITY



In the first image, it is assumed that everyone will benefit from the same supports. They are being treated equally.



In the second image, individuals are given different supports to make it possible for them to have equal access to the game. They are being treated equitably.



In the third image, all three can see the game without any supports or accommodations because the cause of the inequity was addressed.

The systemic barrier has been removed.

A picture illustrating the concepts of equality, equity and justice. Courtesy of <u>Advancing Equity and Inclusion: A Guide for Municipalities</u>, by City for All Women Initiative (CAWI), Ottawa



© Energy Equity



Removing barriers and expanding access to energy efficiency for disadvantaged communities play a central role in creating an equitable, clean energy future. Energy equity is achieved by addressing both social and economic barriers, while remediating the social, economic and health burdens in disadvantaged communities.

Our Equity programs includes:

- Inclusive language and marketing services
- Diverse local suppliers
- Relevant measures



What are Social Determinants of Health (SDOH)?



Efficiency Upgrade in Home

Positive Effects on Home from Upgrades

Positive Effects on Patients'

Health

Overall Effects

on Healthcare

Insulation + Air Sealing

Heating + Cooling Systems

Ventilation + Moisture

Control

Efficient Cooking

Warmer, drier air Improved indoor temps + relative humidity

Less moisture, mold, particulates, pollutants,

combustion byproducts +

allergens

deaths

Fewer heat or cold related

Less hypertension + heart disease

Fewer asthma, respiratory, COPD risks

Fewer heart disease risks and headaches

Fewer cancer risks due to radon, formaldehyde

Less stress, better mental health Reduced hospital + medical visits

Reduced costs of care

Improved social determinants of health













Healthier Homes: Energy + Health for IQ Customers



Referrals from healthcare via simple online survey



Energy Assessment

+ Healthy Homes **Evaluation**



Energy savings recommendations

+ health-related items (air purifier, **HEPA vacuum)**



Contractor installs insulation, HVAC

+ health-related items (pest & moisture control, carpet removal)



+ Indoor Air Quality (IAQ) monitor



IAQ Monitoring





IAQ Monitoring









IAQ Monitoring





AR-4HOME













Building and Environment

Volume 187, January 2021, 107415



Performance assessment of low-cost environmental monitors and single sensors under variable indoor air quality and thermal conditions

Ingrid Demanega ^{a 1}, Igor Mujan ^{b 1}, Brett C. Singer ^c, Aleksandar S. Andelković ^b, Francesco Babich ^a, Dusan Licina ^d 久 ⊠

INDOOR AIR

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https://doi.org/10.1016/j.buildenv.2020.107415 >

ORIGINAL ARTICLE

B. C. Singer W. W. Delp

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Assessment of the Performance of a Low-Cost Air Quality Monitor in an Indoor Environment through Different Calibration Models



Brindisi Research Center, Department for Sustainability, ENEA—Italian National Agency for New Technologies, Energy and Sustainable Economic Development, SS. 7, Appia, km 706, 72100 Brindisi, Italy

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Atmosphere 2022, 13(4), 567; https://doi.org/10.3390/atmos13040567

Received: 8 February 2022 / Revised: 15 March 2022 / Accepted: 30 March 2022 / Published: 31 March 2022

(This article belongs to the Special Issue State-of-Art in Real-Time Air Quality Monitoring through Low-Cost Technologies)



Environment International

Volume 166, August 2022, 107372



Full length article

Laboratory evaluation of low-cost air quality monitors and single sensors for monitoring typical indoor emission events in Dutch daycare centers

Hailin Zheng 🙎 🖂 , Vinayak Krishnan , Shalika Walker , Marcel Loomans , Wim Zeiler

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https://doi.org/10.1016/j.envint.2022.107372 >

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First published: 23 April 2018 | https://doi.org/10.1111/ina.12463 | Citations: 70

monitors to residential sources of fine particles

Response of consumer and research grade indoor air quality

■ IAQ Monitoring – Informing the Occupants

- Absolute vs. relative sensors, varying degrees of precision
- No, some or robust display information
- No, some or robust instructions on actions to take
- Tethered to proprietary app/mobile site for more data
- Wi-fi needed for smart capabilities



Smart(er) Thermostats

- Ecobee's Smart Thermostat Premium has built-in monitor.
- Relative sensor
 - Measures the difference in air quality at a given moment as compared to baseline
 - Estimates CO2 based based on VOC measurement
- Integrated
 - Alerts on mobile and on device
 - Recommends actions















"Robot – it's stuffy, go open the window"





Panasonic Swidget

- Requires both the outlet and the air quality sensor insert
- Can be configured to automatically trigger Panasonic ventilation to run based on sensor air quality readings







CLEAResult's Healthier Homes

500+ IQ Homes Served







Healthy Housing Principles Reference Guide Air purifier + filters
HEPA vacuums
Dehumidifiers
Hypoallergenic bed coverings
Green cleaning kits

Moisture mitigation
Asbestos
abatement
Carpet removal
Floor installation
Carpet cleaning
Pest control
Ventilation systems

9 Utility Client s

Indoor air quality monitor



The excellent team from Building Performance Solutions





Todd Miles

Healthier Homes Practice Lead todd.miles@clearesult.com



Maggie Kelley Riggins
Southeast Energy Efficiency Alliance





Stakeholder Engagement: Keys for Success

Maggie Kelley Riggins, senior program manager July 13, 2023



OUR MISSION

To optimize the use and impact of energy to enhance the quality of life in the Southeast.

OUR VISION

All people in the Southeast live and work in healthy and resilient buildings, utilize clean and affordable transportation, and thrive in a robust and equitable economy.

OUR VALUES



Take Initiative

We take responsibility for realizing a better quality of life in the Southeast.



Value Others

We seek, respect, and promote diverse perspectives.



Earn Trust

We pursue our work with benevolence, competence, and reliability.



Pursue Equitable Solutions

We recognize, acknowledge, and account for a history of prejudice and inequality in Southeastern communities.

Pursuing Equitable Solutions

WE RECOGNIZE, ACKNOWLEDGE, AND ACCOUNT FOR A HISTORY OF PREJUDICE AND INEQUALITY IN SOUTHEASTERN COMMUNITIES AND THE ROLE IT PLAYS IN THE ISSUES WE ADDRESS.



Nashville grandmother and retired librarian Annie Pearl Patton considers her NES electric bill. Source: Southern Alliance for Clean Energy

Procedural Equity All affected communications

All affected communities have a voice in the decision-making process

Distributional Equity
Programs and policies at

Programs and policies are designed to equally distribute its benefits and burdens to the entire community

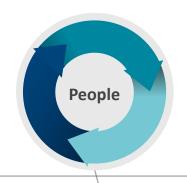
Intergenerational Equity
Programs and policies consider how future generations will be impacted by the

decisions being made today



Shifting the Focus

Traditionally, we think of building energy programs as effective if, and only if, they don't increase the **initial cost** of a building, reduce **kWh** and **CO**², save **jobs**, and are technically **feasible**.



All of those elements are important **and** we must remember the bigger why of buildings.

What are buildings if not for their occupants?

Occupant Outcomes

Higher efficiency can lead to better health and financial outcomes for households.

Support for Workforce

Supporting and resourcing the current workforce and preparing the individuals ready to learn.

Procedural Inclusion

Ensuring inclusion from all perspectives in all parts of the process from development to implementation.



Stakeholder Engagement Considerations

Investment

If you put people in your plan, put them in their budget.

Metrics

Program and policy metrics set in the expressed needs of people.

Process

Develop processes that invite, encourage, and celebrate people where they are.

Trust

Building long-term relationships is a critical part of engagement.

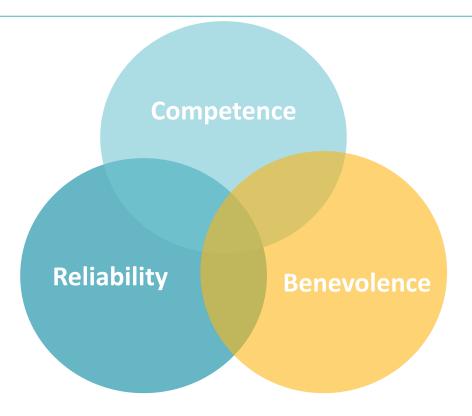
Following

Be ready to follow and not lead. Facilitating and creating space doesn't mean you have to lead.



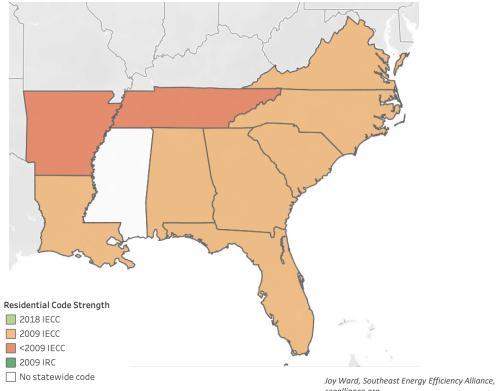


Three Dimensions of Trust



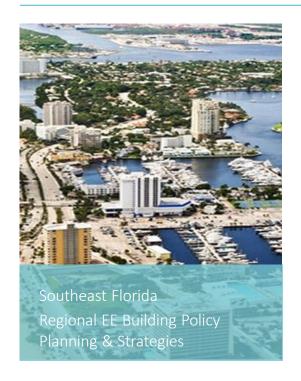


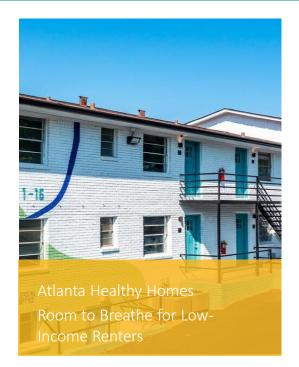
Building Energy Codes & Engaging Stakeholders





SEEA Programs & Engaging Stakeholders









Thank You



SMART ENERGY. STRONG ECONOMY. FOR ALL.

WWW.SEEALLIANCE.ORG



James Metoyer EnerCity Collaborative









James Metoyer

Founder and Executive Director EnerCity Collaborative

&

Principal
Advanced Energy Inspections



To ensure the financial, environmental, and health benefits of a clean energy economy are fully realized in Black, Indigenous, People of Color, underserved, and frontline communities.

Building Durable Wealth in the Community

Workforce Programs & Trainees



- Community Based Organizations
- Homeowners & Renters



Minority & Women Owned Businesses





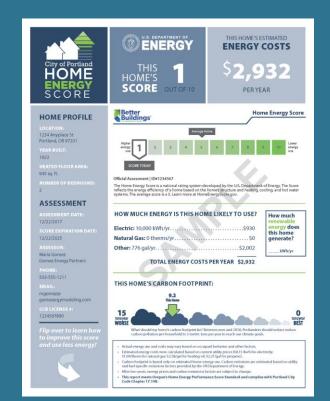






Non-Profit & Community Based Organization Partners

- Train staff
- Secure homes for workforce training on Home Energy Score (HES) assessments and HES scavenger hunts
- Currently assessing homes and consulting on SOW's for deep energy retrofit





Pre-Apprenticeship & Youth Training Program Partners























Training Opportunities

- High School & Youth Programs
- Pre-Apprenticeship Training
- Internships
- Weatherization Contractor Training
- On-The-Job Training









Trainee Next Steps

Offer additional support services for training participants:

- Career Coaching
- In-Field Mentorships
- Scholarships

- Paid Stipends
- Internships
- Employer Connections

NW Residential Construction Career Hub





Review the pathways below for more information on careers in high performance residential building!



Employer Connections

Building the bridge between residential contractors and training graduates:

- Training & Certification
- Wrap Around Services
- Job Shadowing
- Networking Opportunities
- Contractor Training & Support
- High Road Employment Standards



Green Construction Career Pathway & Employer Networking Events

- First ever specialized workforce track at annual BuildRight conference in Portland
 - Invited Workforce Career Coaches and Trainees to attend BuildRight
 - Free registration for trainees
 - Hosted a Workforce Trainee & Employer Meet and Greet
- Multiple workforce trainees received job offers after the conference

















Minority Contractor and Contractor Partners

- Informational webinars to bring awareness about opportunities in the clean energy economy
- 1 on 1 Mentorships that help their business grow
- Guidance on creating a company culture that will foster retention





PCEF Requirements for Contractors

- Meet PCEF wage requirements (funding provided)
- Adopt and follow a Safe & Respectful Workplace Policy and train your workers
- Meet goals for utilization of underrepresented and disadvantaged workers
- Report data about your workforce
- Meet Quality Assurance (QA) requirements



Contractor Development

BPI

- Building Analyst &
- Building Professional Training

Sustainable Homes Professional (SHP)

Spanish & English







Contractor Development

BPI

- Building Analyst &
- Building Professional Training

Sustainable Homes Professional (SHP)

Spanish & English





Sustainable Homes Professional (SHP) for LatinoBuilt Contractors

Overview

CEs & Cost

Sustainable Homes

Professional (SHP) for LatinoBuilt Members

Register Now

Mar. 31 - May 26.

2023 via In-Person

Join LatinoBuilt and Earth Advantage for an in-depth training that will help you expand your residential services and succeed in today's "green" housing market.

The SHP training program is custom- designed for LatinoBuilt members who are residential building professionals looking to enhance their building science knowledge, add new skills to their tooklit, earn the SHP designation, and grow the energy efficiency side of their business.



Find out how to get involved with Portland Clean Energy Fund (PCEF) projects and take advantage of locally available cash incentive and rebate programs.

Learn to maximize the health, energy savings, comfort, durability, and sustainability benefits for your clients.



PCEF Planning Grant



The project team is evaluating the opportunity to use the NREL/DOE Retrofit Installer Badges Toolkit to create a training and/or credentialing program for weatherization contractors working under PCEF.



Installer Badges

Examples include:



- Work Lead-Safe
- Air Seal Attic Floor
- Seal and Dam High-Temperature Heat Sources in Attic
- Prep Attic Floor for Insulation
- Treat Attic Hatch
- Insulate Attic Floor and Pass Inspection First Time.





Visual Job Aids

Office of ENERGY EFFICIENCY
& RENEWABLE ENERGY

Prepare Attic Floor for Insulation

Job Aid for Prep Attic Floor for Insulation Badge

Aligns with Standard Work Specifications 4.0103.1, 4.0103.2. 4.0103.3, 4.0103.4, 4.0103.5, 4.0103.6, and 4.0103.8

BEFORE YOU BEGIN

Check for live knob and tube wiring; dam off when possible, or replace with modern wiring.



Cover junction boxes and attach flag for visibility.





Prepare Attic Floor for Insulation



Install baffles, if needed, Ensure

Remove stored materials. Route exhaust fan ducts to outside, insulate the ducting



Insulation depth rulers installed, 1-2 inches of space between the 1 per 300 square feet. baffle and roof decking for airflow.



Ensure air sealing work is complete prior to adding insulation.



Dams are built around heat sources and air sealing is completed using approved materials (e.g., metal flashing, high-temperature rated sealants. etc.). The damming should be higher than the finished depth of any new insulation. Note that the clearance distance from damming to insulation can vary: follow guidance from the authority having jurisdiction.

4-1

ENERGY Office of ENERGY EFFICIENCY & RENEWABLE ENERGY

CHECKLIST

Prep attic floor for insulation

DESIRED OUTCOME

- Remove stored or miscellaneous materials that would prevent insulation from being installed level and in contact with the attic floor.
- Duct ventilation fans to the outside.
- Cover all wiring junction boxes and flag to be visible above final insulation levels.
- Seal holes between the attic and the outside
- Install soffit vent baffles at all vented soffits.
- Soffit vent baffles are installed to the exterior side of the top plate to allow for the highest
- Soffit vent baffles maintain a minimum 1" clearance between roof deck and baffle,
- Remove drywall or subfloor as required to access cavities.
- Install insulation rulers at a minimum rate of minimum of 1 per 300 square feet of the work area.
- Install dams around attic access, mechanical equipment, and flues/chimneys.



Office of ENERGY EFFICIENCY

For more information, visit: energy.gov/eere/wap DOE/EE-2591 · May 2022





The Alliance

The Pledge

The Work

Tradesworker Equity Council

Get Involved

Resources

SFH in the News

Calendar



The Safe From Hate Alliance

The Safe From Hate Alliance is a comprised of employers, trade associations, unions, public agencies, community organizations, and tradesworkers themselves who are committed to collectively addressing harmful construction jobsite culture that contributes to the attrition of skilled craft workers from the industry—and disproportionately impacting women and people of color.

The Safe from Hate Alliance came together following a May 2020 <u>incident</u> in which a noose was found on a downtown Portland construction site. Since that time, with leadership from the Metropolitan Alliance for Workforce Equity (MAWE), community, and industry, dozens of stakeholders have signed the <u>Safe From Hate Jobsite Culture Pledge</u>. The pledge commits signers to enforce a zero-tolerance policy when workers initiate or fall to report job site discrimination. It also commits them to hold job site trainings

https://safefromhateoregon.org/

https://www.worksystems.org/sites/default/files//Safe%20from%20Hate%20-%20Pledge%20and% 20Signatories%20-%20Updated%2001-07-21.pdf





Nurturing Your Workforce: Partners and Systems

- Supportive services
- Identify / Build Mentorship Systems
- Paid professional development opportunities
- Wage progression and career advancement
- Mentoring for employers for successful recruitment / retention



Takeaways

- Removing barriers
 - Revise employee handbook and hiring policies
 - Pay folks for their time (contractors, CBO's, trainees, etc.)
- Program Implementer
 - Assess if anyone is currently doing the work and become a partner. No need to reinvent the wheel.
- Trainer
 - Be the connector: build the pathway with community orgs, employers, and funding sponsors
- Minority Contractor
 - Find out what CBO's are working on & become a trusted contractor
 - Change company culture to be more inclusive. Safe from Hate



Takeaways

Agency

- Build at local partnerships with technical training schools and utilize workforce readiness and apprenticeship programs
- Career Technical Center
 - Add value to building trades programs with building science career exploration and field experiences with local employers
- Community Based Organization
 - Have you created a list of vetted contractors that are trained in Wx techniques and practices?
 - Bring awareness to your community about healthy and energy efficient housing.



Thank You

James Metoyer

Executive Director

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enercitycollaborative.org



Smart Tools for Efficient HVAC Performance (STEP) Campaign





Scan this QR code to visit our website Contact: christian.valoria@pnnl.gov

The STEP Campaign aims to increase adoption of smart diagnostic tools to streamline HVAC system performance testing and troubleshooting, reducing energy-wasting faults and improving occupant comfort.

To join the STEP Campaign, visit: bit.ly/3DFmEaE



HVAC Contractors and Technicians

- Reduce callbacks, improve consistency and quality, streamline processes
- Find out where to get training on smart diagnostic tools
- Be recognized for successful adoption of smart diagnostic tools!



Utilities and Program Implementers

- Streamline quality installation and quality maintenance programs
- Improve engagement with your contractors
- Be recognized for programs that utilize smart diagnostic tools!



HVAC Training Organizations

- Offer qualified training on System Performance with smart diagnostic tools
- Promote your training events
- Be recognized for providing training!



Weatherization Organizations

- Ensure your ASHP/CAC installations are operating at optimized efficiency
- Develop pilot with PNNL team
- Be recognized!

ORGANIZING PARTNERS















Buildings UP

The Buildings Upgrade Prize



Building capacity to transform U.S. buildings into energy-efficient and clean energy-ready homes, commercial spaces, and communities

Upgrading existing buildings to efficiently run on clean energy will help address climate change. This means transitioning **residential and commercial buildings** to efficient electric equipment, such as **heat pumps and heat pump water heaters**, and ensuring comfort with measures such as **insulation and air sealing**.

Teams participating in **Buildings UP** will develop innovative plans to leverage the billions of dollars through the Bipartisan Infrastructure Law, the Inflation Reduction Act, utility rebate programs, and many other funding sources available and capitalize on this unprecedented opportunity to improve our homes, businesses, and communities.

Buildings UP will award more than **\$22 million** in cash prizes and expert technical assistance to bring winning ideas to life.



www.heroX.com/buildingsUP

Form Your Team and Submit Your Application by July 2023!

- Community-based organizations
- Local governments
- Utilities
- Non-profit organizations
- For-profit energy efficiency companies
- and more!

Multi-stakeholder teams are encouraged

Application support available for new and under-resourced teams

Follow Buildings UP on HeroX for prize info and updates

Questions: buildingsUP@nrel.gov

Explore the Residential Program Guide

Resources to help improve your program and reach energy efficiency targets:

- <u>Handbooks</u> explain why and how to implement specific stages of a program.
- Quick Answers provide answers and resources for common questions.
- Proven Practices posts include lessons learned, examples, and helpful tips from successful programs.
- <u>Technology Solutions</u> NEW! present resources on advanced technologies, HVAC & Heat Pump Water Heaters, including installation guidance, marketing strategies, & potential savings.
- Health + Home Performance Infographic spark homeowner conversations.



https://rpsc.energy.gov





Health + Home Performance Infographic



DOE's new Health + Home Performance Infographic reveals the link between efficiency and health – something everyone cares about. Efficiency programs and contractors can use the question-and-answer format to discover a homeowner's needs.

The infographic is ideal for the "kitchen table" conversations where people decide what to do – and who they want to do it. It also has links for homeowners to find a qualified contractor if they do not already have one.

<u>Download</u> this infographic from DOE's Better Buildings Residential Network.

Looking for photos to help tell your energy efficiency story? Visit our image libraries: https://www.energy.gov/eere/better-buildings-residential-network/articles/image-libraries

Thank You!

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Please send any follow-up questions or future call topic ideas to:

bbresidentialnetwork@ee.doe.gov



